

APPARATUS AND METHODS FOR MONITORING AND CONTROLLING  
POWER AMPLIFIER LINEARITY USING DETECTED FUNDAMENTAL AND  
HARMONIC COMPONENTS

ABSTRACT OF THE DISCLOSURE

- An apparatus for monitoring a power amplifier coupled to a transmission medium includes a detector circuit, coupled to the transmission medium, that generates first and second detector signals corresponding to respective fundamental and harmonic components of a power amplifier output signal produced by the power
- 5       amplifier. A comparing circuit is coupled to the detector circuit and compares the first and second detector signals. The comparing circuit, responsive to a comparison of the first and second detector signals, may generate a signal that indicates linearity of the power amplifier. In some embodiments, the detector circuit may generate the second detector signal without requiring phase information for the harmonic
- 10      component. In other embodiments, a control circuit controls linearity of the power amplifier responsive to comparison of the first and second detector signals, for example, by controlling power amplifier bias and/or input signal level based on the comparison. Related methods are also discussed.